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**A STUDY TO DETERMINE THE OPTIMAL FEASIBLE SYSTEM
OF PROVIDING AUDIOVISUAL
SUPPORT TO WRAMC, WRAIR, AND AFIP**

by
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**Problem Solving Project submitted
in partial fulfillment of the requirements for
the administrative residency
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I. INTRODUCTION

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The perceived need to provide for improvements in audiovisual services at installation level has been a subject of concern within the Federal Government for years.¹ In general, the criticisms leveled against federal audiovisual management have centered around the uncontrolled proliferation of audiovisual activities, duplication of production efforts among agencies, poor utilization of government facilities, and lack of information on the volume and cost of audiovisual productions.²

In an effort directed at resolving the problems associated with audiovisual management, the Directorate of Audiovisual Activities, Department of Defense (DOD), established a Joint Service Planning Group (JSPG) that in December 1976 issued a draft report recommending the establishment of a single manager for all audiovisual activities on an installation; physical consolidation of audiovisual activities, where possible; and evaluation of all requirements to determine the degree and kind of contract support which would be employed.³

Walter Reed Army Medical Center (WRAMC), in response to tasking by The Surgeon General (TSG)⁴ and in compliance with the JSPG report, prepared a consolidation study in March 1977 that recommended reorganization of audiovisual activities of WRAMC, Walter Reed Institute of Research (WRAIR), and the Armed Forces Institute of Pathology (AFIP)

under a central manager with operational control of mission specific activities remaining with the using organizations.⁵ The recommended reorganization was never formally approved and no action was taken to implement the plan.

Conditions Promoting the Study

The need for further study of audiovisual operations and organization at the Walter Reed Army Medical Center became apparent when, in March 1978, Department of the Army (DA) directed WRAMC to consolidate all audiovisual activities on the installation under a single manager, as opposed to the central manager concept.⁶ The DA action specifically directed that audiovisual activities at WRAMC, WRAIR, AFIP, and the Walter Reed Army Institute of Nursing, which is no longer in existence, be consolidated under single management and the feasibility for consolidation of equipment and facility resources be determined.

Additionally, the finding of the JSPG that "at field installations, a single AV support organization should be able to support all normal AV requirements. . . . exceptions would be the special mission requirements such as medical photography,"⁷ was sufficient justification for any new study not to overlook the possibility that other alternatives might be significantly better than the single manager concept in managing the apparently highly specialized audiovisual activities of WRAMC and its tenant units.

Statement of the Problem

The problem was to determine the optimal feasible system for the provision of audiovisual support to WRAMC, WRAIR, and AFIP.

Review of the Literature

Audiovisual activities within the Department of Defense (DOD) are clearly big business. The current annual budget is in excess of 350 million dollars and involves the efforts of approximately 18,000 Defense personnel world-wide.⁸ A review of applicable literature reflects long standing efforts within DOD to establish controls over such services to preclude their proliferation and misuse, but more directly to force closures, consolidations, and conversion to forms of contract support with the stated intent of achieving savings in manpower and associated costs.⁹

Medical illustration services have tended not to be identified separately from all other forms of audiovisual support even though specialized, medical specific audiovisual productions have been found to be the most effective method of communicating medical knowledge and techniques.¹⁰ While DOD has embarked on a course of reducing audiovisual activities, civilian medical facilities have demonstrated a commitment in the opposite direction. The rapid advances in health care delivery have forced the various health science professions throughout the United States toward the expanded use of audiovisual media as the most cost effective means of providing work related continuing education.¹¹

The development of biomedical photography as a separate profession, complete with its own professional associations such as the Biologic Photographic Association, is further evidence that the specialized needs of the health professions are creating a demand for specialized audiovisual applications.

Little information is available in the literature with respect to medical audiovisual organization or management beyond the services provided within individual facilities. Evidence exists that some attempts have been made to pool resources through consortium agreements, but such attempts have met with mixed results.¹²

Problem Solving Methodology

Research for this project was conducted primarily by means of review of technical literature; review of applicable government publications, studies, and correspondence; and semi-structured interviews with personnel in both management and functional levels of audiovisual operations in both DOD and non-DOD facilities as well as with various users of audiovisual media.

Data collection was directed toward determining and defining the current structure for the provision of audiovisual services and the types and quantity of such services being provided within the confines of the WRAMC installation. Further analysis was aimed at determining if audiovisual support services provided by each organization were unique

to and important in the accomplishment of the organizational mission.

Objectives

Intermediate objectives directed at developing a solution to the overall problem were:

1. To define the current system in terms of established audiovisual activities, services, and products.
2. To determine the extent to which activities, services, or products were integral to, or unique in their relation to mission accomplishment.
3. To determine what problems or needs may exist in the current system.
4. To develop alternatives to the current system and to evaluate the advantages and disadvantages of the current and alternative systems.

Criteria

The criteria selected to evaluate alternatives were that the selected system should:

1. Act to control the proliferation of services. While little specific guidance has been provided relative to the inauguration of new services or products, it is clear that some mechanism must be established to determine the extent that existing facilities, personnel and equipment are utilized so as to prevent the creation of excess capacity or redundancies.

2. Eliminate the duplication of production efforts. Unless the physical consolidation of similar activities is possible, some duplication may be inevitable; however, the audiovisual management system must act to prevent duplication where it can be shown that such redundancies create excess capacity.

3. Insure optimum utilization of facilities. Utilization of a consumer oriented service, such as that provided by audiovisual activities, is a direct by-product of consumer awareness of services available and their accessibility and acceptability.

4. Be responsive to the needs of its customers. Since production turn-around times are highly variable and are dependent on the type of audiovisual product involved, responsiveness was arbitrarily defined as the perceived control of the consumer over the activities of the system. While control need not be direct, it was believed that the system should not be perceived to favor one person or group at the expense of another.

5. Provide information on product volume and cost. In the absence of a standardized DOD audiovisual management information system, certain problems exist in determining cost of production and services; however, it was determined that any proposed system provide at least the level of management information necessary to support interagency transfer of funds.

FOOTNOTES

¹Office of Management and Budget Circular A-114. Management of Federal Audiovisual Activities. Executive Office of the President, Office of Management and Budget, Washington, D. C. , 1978. p. 1.

²Ibid. p. 1.

³Deputy Secretary of Defense, U. S. Department of Defense. Plan for the Management and Operation of Department of Defense Audiovisual Activities. Report of the Joint Service Planning Group for Department of Defense Audiovisual Facilities. Washington, D. C. , p. 19.

⁴Office of The Surgeon General, U. S. Department of the Army, Audiovisual Support Activities. Letter to the Commander, Walter Reed Army Medical Center. 18 Nov. 1976.

⁵Walter Reed Army Medical Center, A Study to Develop a Plan of Action for the Operation of Audiovisual Activities at WRAMC. Force Development Division, Directorate of Plans, Training and Security, WRAMC, Washington, D. C. 25 Mar 1977.

⁶Office of the Deputy Chief of Staff for Operations and Plans, U. S. Department of the Army, Plan for Management and Operation of Department of Defense Audiovisual Activities. Washington, D. C. , 24 Mar 1978. p. 6.

⁷Deputy Secretary of Defense p. 19.

⁸Assistant Secretary of Defense, U. S. Department of Defense, Defense Audiovisual Activities. Report of the Establishment of a Defense Audiovisual Agency. Washington, D. C. p. 1.

⁹Deputy Secretary of Defense, p. 6.

¹⁰Health Sciences Media Division, U. S. Army Health Services Command, Department of Defense Directive No. 5040. xx, Audiovisual Activities. Letter to the Director of Operations and Readiness, Department of the Army. Undated. p. 2.

¹¹Malcolm H. Brantz, "Health center streamlines use of audio-visual aids," Hospitals, 1 Sep 1978, p. 81.

¹²Susan M. Sparks, "Pooling Audiovisual Instructional Resources," Nursing Outlook, Vol. 25, Oct 77, p. 625.

II. DISCUSSION

The Current System

Audiovisual services are provided by the hospital, AFIP, and WRAIR, each with its own separate facilities and staff. Table One provides a breakdown of major services by general category.

Table One Audiovisual Services			
	WRAMC	WRAIR	AFIP
Graphics		X	X
Still Photo	X	X	X
Motion Picture		X	
Video Tape (TV)	X		
Exhibits			X
Library		X	X

Formal interservice support agreements between WRAMC, the host, and tenants AFIP and WRAIR have been concluded in the area of audiovisual support. In general, the agreements call for WRAMC to provide closed circuit television and video tape duplication while WRAIR provides graphic arts medical illustration and motion picture services and AFIP provides medical and graphic arts. A detailed description of the support agreements is included at Annex A.

Additionally, WRAMC manages a contractual service for still photo processing, which is available on a reimbursable basis to tenant units. A summary of contract usage by major unit for calendar year 1978 is shown in Table Two.

Table Two
Commercial Contract
Costs by Major Unit for 1978

WRAMC	\$38,462.96
AFIP	1,834.95
WRAIR	16,264.28
DENTAC (Dental Activity)	<u>189.95</u>
TOTAL	\$56,752.04

WRAMC Audiovisual Services

As indicated in Table One, WRAMC audiovisual services are made up of its television and still photo sections, as well as a small classroom audiovisual support element. Organizationally, the activity is as a division of the Directorate of Plans, Training, and Security. Table Three reflects the staffing of the division.

The TV Branch is one of only two such activities within the Army Medical Department and is closely regulated by the Health Sciences Media

Table Three
Organization of WRAMC Audiovisual Division

Office of the Chief

1 Chief
1 Technical Coordinator
1 Secretary
1 Supply Clerk
1 NCOIC

TV Branch

1 Supervisor
1 Production assistant

Technical Section

1 Supervisor
3 Video technicians
5 TV electronic technicians

Production Section

1 TV production specialist
2 TV cameramen (CIV)
5 TV cameramen (Military)

Photo Branch

1 Supervisor
1 Secretary
6 Camera Operators
4 Photography Specialists

AV Support

1 Foreman
2 Equipment Operators

Division of the U.S. Army Health Services Command, Fort Sam Houston, Texas. Capabilities include closed circuit and remote broadcasts of either live or videotaped programs. Located in the AFIP building, the branch provides services to all WRAMC activities on a first-come, first-served basis.¹

During the 12 month period April 1977 through March 1978, the TV Branch produced 6,989 hours of transmission, 984 hours of recording, and 1,084 hours of videotape duplication. In support of the Army's medical education and training effort, the branch publishes a catalog of all programs which have been cleared by the Health Sciences Media Division and which are available for duplication.

While statistics were not maintained in a manner that would identify TV production by user, Roscoe L. Evans, Division Chief, WRAMC Audio-visual Division, stated that the hospital was his biggest customer, followed by AFIP and the U. S. Army Institute of Dental Research.

The WRAMC Photographic Branch is located in the basement of Building One, WRAMC. Activities of the branch are divided between providing medical photographic support to the hospital's education and research efforts and non-medical photographic support such as public affairs, criminal investigation, and DA personnel photographs. In-house photographic laboratory capability is largely limited to black and white production with color processing accomplished by contract.

Table Four presents a breakdown of work performed by the photographic branch for fiscal year 1978.

Table Four
WRAMC Photographic Branch Workload
FY 78

<u>Production Category</u>	<u>Production Units</u>
Slides 2 x 2 Color	64,627
Slides 2 x 2 Black and White	33,153
Negatives	18,713
Prints	21,518
Blue 2 x 2 slides (not ozalids)	4,546

NOTE: Table does not reflect all work performed by the branch.
Blue slides are a color process.

AFIP Medical Illustration Services

Medical illustration services of AFIP are organized to perform the broad mission of collecting, duplicating, publishing and exhibiting illustrations of wounds, diseases, and injuries and to produce illustrations, slides, transparencies and exhibits. Additionally, the service has the responsibility of designing, producing, and repairing instruments and equipment used by personnel in support of the mission of the Institute.

The activity, which is a major staff element reporting directly to the Deputy Director, AFIP, is organized into four divisions; scientific illustration, photography, printing, and illustration library.

Table Five reflects the staffing of the service.

Table Five
Organization of the Medical Illustration Service, AFIP

Office of the Director

1 Director
1 Visual Information Spec
1 Secretary
1 Executive Officer
1 Nurse Consultant

Scientific Illustration Div

1 Supervisor, visual info spec
1 Supervisor, exhibits spec
1 Medical illustrator
2 Visual info spec
8 Exhibit spec
1 Photocomp machine operator
1 Materiel expeditor
2 Machinist
2 Carpenters
2 Illustrators
1 Admin clerk
1 Clerk typist

Photography Div

1 Chief
3 Photography supervisors
9 Photographers
6 Photo lab specialists
1 Work order clerk
1 Film processor
1 Clerk, supply

Illustration Library Div

1 Supervisor, archives tech
1 Clerk, coding
1 Archives tech

Printing Div

1 Chief
1 Foreman, printing
1 Dot etcher
2 Photographers
2 Offset Press Operators
1 Engraver
1 Bindery Worker
2 Bindery finish workers
1 Litho pressman

The primary emphasis of the Scientific Illustration Division is
directed to the support of medical exhibits for the medical departments

of the Armed Forces, to the preparation of graphics for AFIP publications and to support the Institute's training programs.

During fiscal year 1978, the division either built or revised 45 different exhibits as well as meeting requirements to provide technicians to set up, maintain, and operate many of the displays at different locations throughout the country.² The exhibit schedule for the first half of calendar year 1979 reflected a total of 22 exhibits planned for presentations at 12 different professional meeting sites with seven technicians required at six of the locations. Graphics workload of the division for 1978 was 1,908 illustrations and pieces of art work.

The photography division, divided into general photography, color photography, and photomicrography and gross branches, provides a wide range of services in support of the Institute's research and education functions. Additionally, the division provides world-wide photographic coverage of military aircraft accidents and supports military forensic pathology procedures such as the Guyana Operation at Dover, Delaware, as well as those performed at AFIP.

The demand for accurate color reproduction of both gross specimens and microscopic tissue has resulted in a fairly extensive in-house processing capability that is reflected in the Institute's relatively low utilization of WRAMC's color processing contract. In addition to the more traditional medical photographic activities, the unit provides scheduled assistance to researchers in photomicrography and does a large volume of work in X-ray

reproduction, both for instructional purposes and to provide a permanent file of cases referred for diagnosis. Table Six provides a breakdown of work performed by the photography division for fiscal year 1978.

Table Six
AFIP Photography Division Workload
FY 78

<u>Production Category</u>	<u>Production Units</u>
2 x 2 slides black & white	74,555
2 x 2 slides, color	173,553
Negatives	18,817
Prints, black & white	39,366
Prints, color	11,869
X-rays	48,351
Photomicros	46,577
Ozals	9,409

Note: Table does not reflect all work performed.

The extensive printing capability maintained within the Medical Illustration Service has been consistently justified on the basis that the fascicles of the Atlas of Tumor Pathology are used throughout the world for reference and education and therefore must achieve a very high degree of color printing accuracy.³

WRAIR Medical Audiovisual Services

Audiovisual services of WRAIR are organized as a major division reporting to the Command's Executive Officer. The Division of Medical

Audiovisual Services provides still photography, medical illustration, and motion picture production in support of research, training, and publication. In addition to supporting activities of WRAIR, services are made available to WRAMC, The Surgeon General, the U. S. Army Medical Research and Development Command (USAMRDC), and the U. S. Army Institute of Dental Research. Table Seven reflects the staffing of the Division.

Table Seven
Organization of the Division of Medical Audiovisual Services (WRAIR)

Office of the Director

1 Director
1 Receptionist
1 Supply clerk

Motion Picture Production

1 Chief

<u>Production Services</u>	<u>Post-Production Services</u>
-----------------------------------	--

1 Director/editor 1 Director 1 Photographer 2 Camera operators 1 Electrician	1 Chief/editor 3 Editors 1 Audio tech
--	---

Medical Research Photography

1 Chief

Research Photo Branch

1 Chief
1 NCOIC
7 Photographers

Photomicrography Macrography Br.

1 Chief

Color Photography Branch
1 Chief
1 Photographer

Pictorial Ref. Sec.

1 Pict Ref. Asst.

Medical Graphics

1 Art Director
4 Illustrators
1 Artist

Classroom Support

1 Chief
5 Equipment Operators

The general responsibility for the production of films used in Army Medical Department training or research and development activities has been delegated by the Office of The Surgeon General (OTSG) to WRAIR. The effect of such delegation has been to make WRAIR the official production agency for all OTSG film production, responding to the USAMRDC on a world-wide basis for R&D film support, to OTSG for professional medical films, and to the Deputy Chief of Staff for Personnel (DCSPER) for the production of enlisted training films. Film production is controlled within WRAIR by a film committee appointed by the Director, WRAIR. Requests originating outside of WRAIR require approval of OTSG. During FY 78 the Division handled 13 productions totaling 239 minutes. While production is accomplished in-house, motion picture film processing, reproduction, and duplication are handled by contract.

The medical graphics section provides medical art and illustration services in the form of anatomical and medical renderings, technical and statistical graphics, and training aids and devices. Total production of this section for FY 78 was 674 work orders accounting for 2853 units of production.

Services of the still photography section cover photography of gross specimens, surgical procedures, patients, instrumentation, and direct support of research projects where photography is utilized for interpretation. Specialized services provided include photomicrography. The section also provides photocopy and photoduplication, color and black and white

slide preparation to include ozalids. Table Eight provides a breakdown of work performed by the photography section during fiscal year 1978.

Table Eight
WRAIR Photography Division Workload
FY 78

<u>Production Category</u>	<u>Production Units</u>
2 x 2 slides, black & white	40,452
2 x 2 slides, color	5,517
Prints, black and white	19,868
Prints, color	775
Photomicros	NA
Ozalide*	20,226

Note: table does not include all work performed.

*Included in 2 x 2 B&W slide total.

Special Mission Capabilities

It is apparent from a review of the current system for the provision of audiovisual support to the Center that a significant amount of highly differentiated and specialized audiovisual services are being utilized by WRAMC, AFIP, and WRAIR. Justification and support for the necessity of these services has been predicated largely on the contention that they were integral to the successful accomplishment of the various organization missions. In fact, photo and graphic illustration services have been long associated with medical care, education, and research activities, and attempts to generalize such support have met with limited success. As early as 1950, audiovisual services at WRAMC were

managed by the Army Medical Department Research and Graduate School (now WRAIR); however, over the years each organization has progressively developed functions specific to its own specialized area.⁴

The audiovisual functions present at WRAMC are fairly typical of those found at any large teaching and research oriented medical facility. Both Brooke Army Medical Center and the Washington Veterans Administration Medical Center have medical photographic and television activities in support of their regional teaching and research responsibilities.

While WRAMC has developed audiovisual requirements oriented to active patient care and medical education, the AFIP has developed services directly related to its vastly different mission. AFIP is a tri-service organization reporting to a board of governors consisting of the Assistant Secretary of Defense for Health Affairs; the Assistant Secretary of Health, Education, and Welfare for Health; The Surgeons General of the Army, the Navy, and the Air Force; the Chief Medical Director of the Veterans Administration; and a former director of AFIP. The mission statement of AFIP is:

The Armed Forces Institute of Pathology has a three-fold mission--consultation, education, and research. It has the responsibility to maintain a central laboratory of pathology for consultation and diagnosis of pathologic tissue for the Department of Defense, other Federal Agencies, and for civilian pathologists; conduct experimental, statistical, and morphological research in pathology; provide instruction in advanced pathology and related subjects to medical, dental,

and veterinary personnel; train enlisted personnel of the Armed Forces in histopathology and related techniques; prepare teaching aids; loan pathologic, photographic, and other educational material to other Federal medical services, museums, medical and dental schools, scientific institutions, and qualified individuals; maintain medical illustration services; maintain the Armed Forces Medical Museum; contract with the American Registry of Pathology for cooperative enterprises in medical consultation, education, and research between the Institute and the civilian medical profession; maintain a consultation and monitoring service to assist in the resolution of medical-legal cases for the Department of Defense and other Federal agencies; and to receive donations of those items, materials, and medical artifacts which have a scientific, historical, or archival significance.⁵

As a consequence of the Institute's mission, its audiovisual services have become an integral part of the clinical consultation, diagnostic, and registration efforts. Specimens, tissue slides, and X-rays of cases referred for evaluation and diagnosis must be photographed on a priority basis for historical and clinical documentation. Such "rush" requests require a minimum of a 24-hour turn-around and constitute approximately 30 percent of the work orders handled by the photographic division.^{6, 7}

WRAIR, as an element of USAMRDC, headquartered at Fort Detrick, Md., is involved in all aspects of medical research and development conducted at various sites and laboratories throughout the Continental United States and five foreign countries. The special mission characteristics of audiovisual support to medical research and development were recognized by the U. S. Army Audiovisual Center when it approved an exemption for

USAMRDC elements from consolidation of audiovisual facilities at post, camp, and station level.⁸ The exemption applied only to research and development documentation and support--requiring all routine audiovisual support to be obtained from the supporting host installation facilities--thereby accepting the USAMRDC contention that medical illustration services were unique in comparison to routine, or non-medical, audiovisual support.⁹

Problems and Needs

The effect of General Orders No. 2, 19 Jan 1950, authorized by SGO Circular 166, 29 Dec 1949, was to create a consolidated audiovisual service, which included the Signal Photo Branch, at WRAMC.¹⁰ As was noted earlier, each of the principal units on the WRAMC installation has developed specialized audiovisual services in support of its own peculiar mission and needs. The obvious result has been both a segmentation and differentiation of specialized functions as in the case of motion picture production at WRAIR, and video tape and television functions at WRAMC, as well as duplications in such activities as photography, graphics, classroom support, and film libraries. Where they occur, such duplications exist due to an evolutionary development of sub-specializations, separate and distinct command and funding channels, and space limitations. Duplicative efforts present problems when the existence of like services creates

competition for customers and the concomitant under-utilization of some or all services.

Implicit in the DA guidance to WRAMC¹¹ and specifically stated in the guidance to WRAIR¹² was the intent that units located at a post, camp, or station receive their general, non-mission oriented audiovisual support from the host organization at each post, camp, or station. Currently, each of the principal tenant organizations on the WRAMC installation maintains the capability for, and does provide non-mission photographic support on a limited basis.

What duplication of effort that does exist, however, has not resulted in any discernible underutilization of facilities. While workloads of the three photography activities are not directly comparable due to the different types of work each performs, several indicators of utilization are available. AFIP, despite its high volume, consistently maintains a backlog of work to be done and operates a second shift. WRAMC, which maintains almost no in-house processing capability, is a heavy user of contract support, and WRAIR, even with a fairly complete processing capability, also contracts work out.

Volume, however, is frequently a poor indicator of efficient operations since effective utilization of a facility may be more dependent on personnel and budget limitations and the equipment employed than on apparent capacity. The JSPG report took into account the fact that

allegations of under-utilization were frequently overstated, especially in those circumstances where resource ceilings prevented optimum production.¹³

Since it has been successfully argued that supply creates its own demand,¹⁴ the existence of audiovisual services and equipment not under the control of organized and legitimate audiovisual departments lends further credence to the view that existing facilities are not only operating at full capacity, but have failed to expand to meet legitimate demand.

The existence of photography capabilities within several operating departments at WRAMC and AFIP¹⁵ is suggestive of the fact that internal controls have been insufficient to prevent the proliferation of duplicative services. WRAMC Regulation 108-40 establishes WRAMC Audiovisual as the approval authority for in-house equipment requests, but stops short of placing all such services under the Department's control. In many instances, better equipment exists in the operating departments than in WRAMC's own photo section, which is poorly housed and equipped.

Installation-wide there is no system for the rationalization of services, prevention of duplication, or the control of unwarranted proliferation of audiovisual activities, except for the obvious constraints of budgetary limitations and personnel ceilings. Interservice support agreements cover only areas of potential cooperation, they do not guarantee that services will be provided, nor do they address all possible areas of beneficial

participation. As an example, both AFIP and WRAIR possess the capability of producing blue background slides using a black and white diazo process. WRAMC photographic section meets requests for blue slides through a color photographic process that is less efficient and more costly than the diazo method.¹⁶

Currently, neither WRAMC nor AFIP has a management information system capable of collecting workload data by consumer or cost by service or media. WRAIR, on the other hand, has developed a comprehensive, computer supported system for the collection of such management data. (Annex B)

The need is to develop a total, integrated system capable of efficiently and effectively meeting the specialized needs of each organization, while operating to insure optimum utilization of all services.

Alternatives

Various organizational arrangements were considered as potential alternatives for the provision of audiovisual support to WRAMC, WRAIR, and AFIP. Physical consolidation of all audiovisual services was not considered since it was determined not to be feasible either now or in the foreseeable future due to the lack of space on the installation for such an activity. Alternatives selected for analysis were reorganization under a single manager with operational control of all services, establishment of an audiovisual steering committee to oversee audiovisual operations, and

the current system. The current system was considered as an alternative on the basis that the essential mission characteristics of the audiovisual services provided could operate to justify its continuation, as well as to guard against the possibility that other alternatives might not be sufficiently better.

Alternative 1

Establish a Directorate of Audiovisual Services under the direction, authority, and control of the WRAMC Installation Commander and reporting directly, as a special staff officer, to the Chief of Staff, WRAMC. The directorate would be assigned responsibility for all audiovisual services on the installation. Personnel and resources of all activities involved in the management or performance of these services would be transferred to the directorate. No requirement for the immediate relocation of assets would be anticipated, in that the directorate would be composed of a minimum of three divisions operating in support of the hospital, WRAIR, and AFIP. While each division head would report to the Director of Audiovisual Services, the division chiefs would act as consultants to the various supported commands. The directorate concept would require allocation of a minimum GS grade of 15, but double hatting the director as both a staff officer and hospital division chief would have the dual result of upgrading the hospital audiovisual activity without increasing total management positions. Additional positions would be required to support administrative activities of the directorate such as budgeting, reporting, and the accounting that would be required to recover costs of services provided.

Alternative 2

Establish a WRAMC Installation Audiovisual Steering Committee to be chaired by the Installation Commander and composed, as a minimum, of the commanders of each organization possessing audiovisual activities and their respective audiovisual directors. The committee would meet at least quarterly to review and evaluate the performance of all audiovisual services, approve audiovisual budgets, and review and approve all requests for additional equipment or services. To be effective, the authority of the committee would have to be absolute and it would have to be recognized by DOD as the single manager of all installation audiovisual activities. No additional resources would be required in support of this alternative.

Alternative 3

Alternative three is the current system and has been discussed in detail under the description of the current system.

Analysis of Alternatives

Control the Proliferation of Services

Alternative 1, by placing all audiovisual services under the control of a single manager, could be expected to provide the mechanism necessary to monitor and control audiovisual facilities, personnel, and equipment so as to prevent the creation of excess capacity or unnecessary redundancies. Likewise, alternative 2 would force a top level management review and

analysis of current and proposed services in such a manner that it would be in the best interests of the commanders involved to attempt to derive the maximum benefit with a minimum expenditure of resources. Alternative 3, on the other hand, has been shown to lack sufficient integration to insure that proliferation of services does not occur.

Eliminate Duplication

Since physical consolidation is not possible, none of the alternatives considered would act to eliminate duplication of legitimate production efforts. However, alternative 1 could be expected to identify under-utilization and would have the capability of shifting resources, or eliminating inefficient activities. Also, alternative 2, by calling for an installation-wide review of activities and approval of expenditures, could be expected to highlight unnecessary and inefficient redundancies, to include the existence of sub-rosa personnel, facilities, and equipment that would probably continue to be protected by each organization under alternative 1. Alternative 3 does not address duplication of services, except to the extent that interservice support agreements negate the need for replication.

Insure Optimum Utilization

Utilization of a consumer oriented service, such as that provided by audiovisual activities, is a direct by-product of consumer awareness of services available, their accessibility, and acceptability. In this

regard, both alternatives 1 and 2 could be expected to maximize utilization to the degree that a total systems perspective is attained. Alternative 3, by lacking integration, cannot be expected to insure optimum utilization.

Respond to Customers Needs

Since responsiveness was defined as the perceived control of the consumer over the system, the removal of direct control over audiovisual services from WRAIR, and AFIP, required by alternative 1, must be considered a significant disadvantage of that alternative. Alternatives 2 and 3, however, by leaving control in the hands of the principal consumers, meet the criteria of responsiveness.

Provide Volume and Cost Information

None of the alternatives provide the necessary information on product volume and cost that would be necessary to provide efficient management of an audiovisual production and service system. Such a deficiency is a major deterrent to the implementation of alternative 1, but would have no immediate effect on either of the other alternatives.

Optimal Feasible Solution

Alternative 2 is the optimal feasible solution for the provision of audiovisual support to WRAMC, WRAIR, and AFIP.

FOOTNOTES

¹Interview with Roscoe L. Evans, Chief, Audiovisual Systems Division, WRAMC, 18 December 1978.

²Interview with William E. Schettler, Associate Director for Medical Illustration Services, AFIP, 19 December 1978.

³Interview with Jerry L. Badders, Chief, Printing Division, MIS, AFIP, 19 December 1978.

⁴Division of Medical Audiovisual Services, Walter Reed Army Institute of Research, Audiovisual Consolidation, WRAMC and Tenants. Letter to The Surgeon General. 29 Jun 1978, p. 1.

⁵AFIP, Annual Report, Calendar Year 1977, p. 3.

⁶Schettler, 3 April 1979.

⁷Photography Division, MIS, AFIP, Annual Report--Calendar Year 1978, 12 Jan 1979, p. 2.

⁸U. S. Army Audiovisual Center, Department of the Army, Consolidation of Audiovisual Management, U. S. Army Medical Research and Development Command. Letter to the Commander, USAMRDC, 23 Jan 1979.

⁹U. S. Army Medical Research and Development Command, Consolidation of Audio Visual Management. Letter to U. S. Army Audiovisual Center. 31 Oct 78.

¹⁰Division of Medical Audiovisual Services, Walter Reed Army Institute of Research, p. 1.

¹¹Office of the Deputy Chief of Staff for Operations and Plans, U. S. Department of the Army, Plan for Management and Operation of Department of Defense Audiovisual Activities. Washington, D. C., 24 Mar 1978, p. 6.

¹²U. S. Army Audiovisual Center.

¹³Deputy Secretary of Defense, U. S. Department of Defense, Plan for the Management and Operation of Department of Defense Audiovisual Activities. Report of the Joint Service Planning Group for Department of Defense Audiovisual Facilities. Washington, D. C. , p. 12.

¹⁴Paul A. Samuelson, Economics. (New York: McGraw-Hill Book Company, 1973), p. 336.

III. CONCLUSIONS AND RECOMMENDATIONS

The magnitude of the audiovisual problem throughout DOD and the intensity of Congressional criticism, as well as the problems identified locally, demand a high level and decisive response. However, the essential mission characteristics of the audiovisual support currently being provided WRAMC, WRAIR, and AFIP are suggestive of the need to avoid dramatic responses that would or could jeopardize the vitally important medical missions of the institutions in question. The alternatives considered recognize the critical importance of the close working relationship between the physician and the medical illustrator or bio-medical photographer.

On balance, alternative 2, integrating the current system by establishing an audiovisual steering committee, is only slightly better than alternative 1 and is heavily dependent on command support, but can be implemented rapidly, and is in keeping with current DA efforts to reduce organizational layering, and contain costs. It is therefore recommended:

1. That action be initiated immediately to establish a WRAMC Installation Audiovisual Steering Committee, as described in alternative 2, to become the single manager for all audiovisual support on the installation.

2. That WRAMC audiovisual services be reorganized to director

staff level under the Chief of Staff, WRAMC.

3. That WRAMC provide all general, non-medical mission photography and that interservice support agreements be amended to reflect such service.

4. That an inventory of all non-controlled medical illustration services be conducted with a view toward either eliminating such activities or including them within the appropriate audiovisual department.

5. That the feasibility of adopting the audiovisual management information system and procedures developed and employed at WRAIR be studied for all installation audiovisual activities.

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ANNEX A

ANNEX A

Interservice Agreement (WRAIR)

<u>Item</u>	<u>Category of Support</u>	<u>Supplier Will</u>	<u>Receiver Will</u>
30	(SY) Audiovisual	Provide CCTV, to include live television and for the recording, play back, procurement, duplication, and distribution of videotape programs in support of education, training, diagnostic patient care, administration and professional requirements. Raw stock videotape costs will be reimbursable to WRAMC.	<p>Provide medical illustration to include the development and completion of graphic arts medical illustration. Illustrations may be in all media (ink, water color, oil, etc.) to include: surgical procedures anatomical specimens, special and exhibit manuals, pamphlets, visual aids, and allied and associated photography as required.</p> <p>Provide all aspects of motion picture color and black and white photography, to include motion picture cameras, film, processing, duplication, editing, related sound recording and synchronization, and optical answer and release prints. Also, conversion from videotape to film prints by contractual means as required.</p>

Interservice Support Agreement (AFIP)

<u>Item</u>	<u>Category of Support</u>	<u>Supplier Will</u>	<u>Receiver Will</u>
27	(SY) Audio-Visual Services	<p>Professional television support to include the recording, duplication and playback of videotape and the presentation of live television programs as requested.</p> <p>Provide technical advice and assistance in systems involving television, audio, radio, intercoms and audio-visual communication equipment.</p> <p>Provide commercial contractual services for black and white and color still photo requirements.</p>	<p>Make reimbursement for rawstock videotape.</p> <p>Provide procurement and loan of audio-visual aids such as movie films, filmstrips, transparencies, recordings and videotapes.</p> <p>Provide loan of audio-visual equipment when requested, exclusive of television equipment.</p> <p>Make reimbursement for commercial still photo contract requirements.</p> <p>Provide facilities to preview audiovisual aids.</p> <p>Provide development and loan of professional instructional materials primarily in the field of pathology.</p> <p>Provide WRAMC the following when personnel, equipment, workload and time permit:</p> <p>Medical and graphic art such as charts, graphs, posters; design, construction and modification of medical instruments when not available through civilian sources; photo-</p>

graphic services such as
film processing; one or
two-line engraving of
plaques or medallions;
and consultation and
assistance in visual
displays for WRAMC
activities.

ANNEX B

① WORK ORDER

② TX TYPE

J/A

③ APC

CC1-7

CC8-9

④ REQUESTED BY
CC27-41 SURNAME ONLY
DIVISION

PHONE

CC10-26 (NUMBER ONLY)

⑤ DATE ORDERED

CC42-47

Mo / Yr / Da

⑥ DATE ART DUE

CC48-53

Mo / Yr / Da

⑦ DATE PHOTO DUE

CC54-59

Mo / Yr / Da

NUMBER OF ORIGINALS _____ REMARKS :

MEDICAL GRAPHICS

	CC8-9	CC10-18	CC16-21	CC22-24	CC25-26
	①	② HOURS	③ MATERIAL	④ NUMBER OF PIECES	⑤ ARTIST
GRAPHIC ILLUSTRATION	JB				
CERTIFICATE	JC				
MEDICAL ILLUSTRATION	JD				
DESIGN CONSULTATION	JE				
OTHER	JF				

	MEDICAL PHOTO			SLIDES		FILMS						PRINTS						HOUR	BY
	⑩ CC 8-9	⑪ COLOR CC 10	⑫ B/W CC 11	⑬ 2 X 2 CC 12 - 14	⑭ 3 X 4 CC 15 - 17	⑮ 3520 CC 18 - 20	⑯ 3546 CC 21 - 23	⑰ 475 CC 24 - 26	⑱ 70 CC 27 - 29	⑲ 8/10 CC 30 - 32	⑳ 35P CC 33 - 35	㉑ 475 CC 36 - 38	㉒ 577 CC 39 - 41	㉓ 8/10 CC 42 - 44	㉔ 11/14 CC 45 - 47	㉕ 16 X 20 CC 48 - 50			
MEDICAL	JM																		
PORTRAITS	JN																		
SLIDES	JO																		
COPY	JP																		
PHOTOMIC	JR																		
AB	JS																		
ISC	JX																		

RECEIVED BY:

⑩ CC 60-88
DATE: --/--/--
MO DY YR

RAMC 1443

1 Oct '77 thru 15 Sep '78

NUMBER OF ORIGINALS	0	0
NUMBER OF COPIES	0	0
SUPPLY QUANTITY	10	00
JOS FOR MONTH	103	34
MONTH COST OF MATERIALS		517.04
MONTH LABOR COST		567.30
MONTH COST	1,075.93	1,075.54
JOS FOR YEAR	107	110
YEAR COST OF MATERIALS		726.34
YEAR LABOR COST		1,215.40
YEAR COST	1,919.73	1,911.74
		00.10
		290
		5,041.23
		5,709.07
		10,400.50
		14,441.72
		116,775.26
		355.4
		21,676.91
		54,219.20
		12,043.00
		73,066.77
		12,017.11

1 Oct 77
Chy 15 Sep 78

JH	JH	JN	JP	JR	JS	JX	2X2	5196	4826	18328 °	5-17	60357	45969
37	33	AR	221	21	231	21	3X4	150	6	156 °	150	603	758

[illegible][illegible][illegible]

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
2593.60	814.70	6.00	11.00	9	21	30	9	17	17	17	17	17	17
**TOTALS:	6340	9282	15552	6744	79152	95934							

==TOTALS:	6300	9282	15592	6794	79152	95936
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UNLY REPRODUCTIONS FOR JUN 78
BY FIG NUMBER

REPORT WAYS - A1

29 JUN 78

SPRIN 8016

PAGE 3

FIG	JOB NUMBER	FILMS			PRINTS			SLIDES		
		35MM	7MM	8/5	8/10	2/2	3/4	OTHER	2/2	3/4
		B-M COL	B-M COL	B-M COL	B-M COL	B-M COL	B-M COL	B-M COL	B-M COL	B-M COL
612770.03.0.00324	0040416	26	14	14	14	22	26	41	10	170
612770.03.0.00401	0040296	17						95	72	
612770.03.0.00702	0040426	14						14	28	
612770.03.0.00035	0040230	1	3			8		3	15	
612770.04.0.00001	0040103	4	12			94	19	20	2	151
612770.04.0.00003	0047794			94		30		144	90	332
612770.04.0.00012	0040122	4					6		10	
612770.04.0.00020	0040023	20						19	39	
612770.04.0.00033	0040371	11			25				26	62
612770.04.0.00039	0047733	39	16		20			153	7	235
612770.04.0.00063	0040251	5	2		4	6		10	27	
612770.04.0.00079	0040230	3	6		32	4		89	2	116
612770.04.0.00083	0040210			2		12			16	
612770.04.0.10005	0040411								12	12
612771.04.0.00150	0040100	21				27		22	10	88
612771.04.0.00349	0040297	3				4		2	9	
612771.04.0.00450	0040400	15				26	1	21	5	60
612771.05.0.00153	0047322	2	36	16		81	10	16	1	174

UNIT REPRODUCTIONS FOR JUN 78
BY REQUESTOR

REPORT NAME - A2

SYSTEM 8816

28 JUN 78

PAGE 4

REQUESTED BY	ORDER DATE	DATE DEV	FIG NUMBER	JOB NUMBER	FILMS	PRINTS	SLIDES	GRAPHIC	PHOTO	ARTIST
CHENEY	06/08/78	06/09/78	612770-02-0-00346	0047144	7	1			OK IM	D
CHENEY	06/12/78	06/09/78	612770-02-0-00346	0047345		2	12		OK IM	D
CHENEY	06/10/78	06/15/78	612770-02-0-00346	0040263			20		EM	E
CHENEY	06/19/78	06/26/78	612770-02-0-00346	0040312	4	3			TO DM	T
CHENEY	06/17/78	06/25/78	612770-02-0-00346	0040357						M
GLAGETT	06/10/78	06/29/78	611001-06-0-10170	0040362	4		6		GE SK	G
CROSS	06/25/78	06/08/78	612770-02-0-00221	0040063	1		12		TO OK	T
CUTRIGHT	06/06/78	06/10/78	612770-06-0-00010	0040225	6		2		SM	S
CUTRIGHT	06/12/78	06/30/78	612770-06-0-00010	0040316					TO	T
DANIELL	06/20/78	06/31/78	612770-06-0-00001	0040067		0			MS	M
DANIELL	06/19/78	06/31/78	612770-06-0-00001	0040102	2	4			RK EW	R
DAVIS	06/29/78	06/11/78	612770-06-0-00000-063	0040034			990		OK	D
DAVIS	06/01/78	06/22/78	612770-06-0-00039	0040100			20		OK	D
DAVIS	06/10/78	06/10/78	612770-06-0-00000-063	0040120	2	00			RK RK	R
DAVIS	06/14/78	06/16/78	612770-06-0-00039	0040323				7		JM
DIAMOND	06/11/78	06/11/78	612770-06-0-00039	0040277	0		40		OH SM	D
DIAMOND	06/12/78	06/15/78	612770-06-0-00039	0040290	4		10		GE SM	G
DIAMOND	06/12/78	06/15/78	612770-06-0-00039	0040301	10		14		GE SM	G
DIAMOND	06/19/78	06/21/78	612770-06-0-00039	0040333			60		OK	D

ANNEX C

ANNEX C

DEFINITIONS

Centralized Management: The administrative management of all specified audiovisual activities in a given area. It may or may not include operational control of the individual activities.

Single Management: Management of an entire audiovisual function or functions within a Service, a major sub-element thereof or a designated geographic area by one organization. Includes operational control of individual activities.

Audiovisual Products: Material containing sound or visual imagery for conveying a message; refers to slide sets, film strips, motion pictures, television (film, videotape, and disc), audio recording (tape and disc), and mixed media (any combination of two or more media productions).

Audiovisual Services: Those functions performed in the production, reproduction, utilization, broadcasting, distribution, and storage of audiovisual products. Included are such functions as scripting, photography, film processing, videotape transfer, sound recording and duplication, tape or film editing, audiovisual media depository and records center operations and support maintenance of audiovisual equipment and facilities.

Audiovisual Activities: Resources used to provide an audiovisual service or produce an audiovisual product. Resources include equipment,

facilities, personnel, supplies and accessories.

Audiovisual Equipment: Equipments used for the recording, production, reproduction, processing, distribution, or exhibiting of audiovisual products.

Audiovisual Facility: A building, or space within a building, owned or operated by the Government which houses either an audiovisual activity; audiovisual equipment or a capability to provide an audiovisual service.